



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/537,465

06/03/2005

Tatsuya Morikawa

4720

23373 7590 12/31/2007  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

HU, HENRY S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

12/31/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,465	<b>Applicant(s)</b> MORIKAWA ET AL.	
	<b>Examiner</b> Henry S. Hu	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on Election of October 25, 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 1, 13 and 17 is/are objected to.
- 8) ☒ Claim(s) 1-18 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1796

### DETAILED ACTION

1. It is noted that USPTO has received an **Election** filed on October 25, 2007. **Group I** (Claims 1-17) was elected **without traverse**, while no claim was amended, cancelled or added. As discussed earlier, Applicants' **four IDS**' (1 page each) filed so far were received. This US Application is from **PCT/JP03/15508** filed on December 4, 2003. It is also noted that USPTO has received **Pre-Amendment** filed on June 3, 2005. **Claims 3-7, 10-11 and 13-16 were amended, while no claim was cancelled or added.** To be specific, such an amendment is only to remove the improper multiple claim dependency. **Claims 1-18 with two independent claims** (Claim 1 and Claim 18) are now pending, while non-elected **Claim 18** (Group II) is withdrawn from consideration. An action follows.

### *Claim Objections*

2. **Claims 1, 13 and 17 are objected to** because of the following informalities (Applicants may want to correct the specification as well):

(a) On **Claim 1** at lines 3-7, the language as "one terminus of the chain is a carbon-carbon double bond or an Si-H group and the other terminus of the chain is an Si-H group or a carbon- carbon double bond" may be confusing. It is unclear that both carbon-carbon double bond and Si-H group need to be present within the same fluoropolymer or not. Rewriting is needed.

Art Unit: 1796

(b) On **Claim 13** at line 3 and **Claim 17** at line 2, the language as “FIPG and LIM” may be not clear enough to one having ordinary skill in the art. Whole names may be needed to be with FIPG and LIM.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The limitation of parent **Claim 1** in present invention relates to **a fluoropolymer composition comprising a methylene group-containing fluoropolymer (A) and a hydrosilylation catalyst (B)**, wherein said methylene group-containing fluoropolymer (A) has methylene group-containing repeating units in the main chain thereof and is capable of hydrosilylation in the presence of said hydrosilylation catalyst (B) and **one terminus** of the chain is a carbon-carbon double bond or an Si-H group and **the other terminus** of the chain is an Si-H group or a carbon- carbon double bond.

*See other limitations of dependent Claims 2-17.*

Art Unit: 1796

5. **Claims 1-5 and 7-17** are rejected under 35 U.S.C. 102(b) as being anticipated by **Langstein et al. (US 5,554,689)**.

Regarding the fluoropolymer composition limitation of parent **Claim 1**, **Langstein** has disclosed the preparation of a composition with combination of three components including: (A) **polyorganosiloxanes having Si-H on both endgroups**, (B) **fluororubbers having lateral olefinic double bonds on both terminuses**, and (C) **a hydrosilylation catalyst** such as hexachloroplatinic acid (abstract, line 1-12; column 4, line 27-42). Suitable fluoropolymers having lateral olefinic double bonds on both terminuses are indeed methylene group-containing since they are made from vinylidene fluoride and other co-monomers (see column 2, line 37-45; column 4, line 58 – column 6, line 21; particularly see the use of VDF at column 5 at lines 23 and 62). Suitable polyorganosiloxanes having Si-H on both endgroups are made from column 6, line 23 – column 7, line 3.

According to current limitation, the language as “one terminus of the chain is a carbon-carbon double bond or an Si-H group and the other terminus of the chain is an Si-H group or a carbon-carbon double bond” may thereby include a fluoropolymer having only double bonds on both terminuses. Additionally, open language “comprising” is applied to the composition. Therefore, **Langstein** anticipates current limitation of parent Claim 1.

Art Unit: 1796

6. Regarding a hydrosilylation reaction-capable compound (C) used in **Claims 5 and 7-9**, polyorganosiloxanes having Si-H on both endgroups mentioned as (A) component is exactly reading on dependent Claims 5 and 7-9.

Remaining dependent **Claims 2-4 and 10-17** are thereby rejected by the disclosure mentioned as above, the specification disclosed by Langstein or by the inherent issue.

7. **Claims 1 and 3-17** are rejected under 35 U.S.C. 102(b) as being anticipated by **Carter et al. (US 4,057,566)**, **Carter et al. (US 4,100,136)** or **Takago et al. (EP 527,008 A1)**.

Regarding the fluoropolymer composition limitation of parent **Claim 1**, each of **Carter (566)**, **Carter (136)** and **Takago** has individually disclosed the preparation of a composition with combination of three components including: (A) **fluorocarbon siloxane polymers having Si-H on both endgroups**, (B) **fluorocarbon siloxane polymers having double bonds on both terminuses**, and (C) **a hydrosilylation catalyst** such as hexachloroplatinic acid.

To be specific, see **Carter (566)** at abstract; column 4, line 40-61; column 6, line 39-42. See **Carter (136)** at abstract; column 4, line 39-60; column 6, line 39-42. See **Takago** at abstract; see the double bond as end group factor "X" on fluorosilicone (A) at page 6, line 43 – page 7, line 42.

Art Unit: 1796

According to current limitation, the language as “one terminus of the chain is a carbon-carbon double bond or an Si-H group and the other terminus of the chain is an Si-H group or a carbon-carbon double bond” may thereby include **a fluoropolymer having only double bonds on both terminuses** and/or **a fluoropolymer having only Si-H bonds on both terminuses**.

Additionally, open language “comprising” is applied to the composition. Therefore, each of Carter (566), Carter (136) and Takago anticipates current limitation of parent Claim 1.

8. Regarding a hydrosilylation reaction-capable compound (C) used in **Claims 5-9**, **fluorocarbon siloxane polymers having Si-H on both endgroups** mentioned as (A) component and **fluorocarbon siloxane polymers having double bonds on both terminuses** mentioned as (B) component is exactly reading on dependent Claims 5-9.

Remaining dependent **Claims 3-4 and 10-17** are thereby rejected by the disclosure mentioned as above, the specification disclosed by Carter (566), Carter (136) and Takago or by the inherent issue.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1796

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Langstein et al.** (US 5,554,689) in view of **Carter et al.** (US 4,057,566), **Carter et al.** (US 4,100,136) or **Takago et al.** (EP 527,008 A1).

The discussion of the disclosures of the prior art of Langstein for Claims 1-5 and 7-17 of this office action is incorporated here by reference. The discussion of the disclosures of the prior art of Carter (566), Carter (136) and Takago for Claims 1 and 3-17 of this office action is also incorporated here by reference. Regarding dependent **Claim 6**, **Langstein** is silent about using fluorocarbon polymers having -Si-H on both endgroups mentioned as (A) component while using an additional (C) component having double bonds on both terminuses. **Each of Carter (566), Carter (136) and Takago has taught such a subject matter.** For instance, see **Carter (566)** at abstract; column 4, line 40-61; column 6, line 39-42. See **Carter (136)** at abstract; column 4, line 39-60; column 6, line 39-42. See **Takago** at abstract; see the double bond as end group factor "X" on fluorosilicone (A) at page 6, line 43 – page 7, line 42. By



Art Unit: 1796

doing so, such a composition obtains more diversified hydrosilylation product and may be with improving reversion resistance in the cured state (For instance, see Carter "566" at column 1, line 50-59).

11. It is noted that all the involved references are dealing with hydrosilylation products made from fundamentally the same two functional groups, one having ordinary skill in the art would therefore have found it obvious to modify Langstein's process of making his composition by **using the same or similar composition** as taught by Carter (566), Carter (136) or Takago. By doing so, one would expect that all species in the same genus (fluoropolymer having the same functional group) would succeed based on functional equivalence and interchangeability. Additionally, more diversified and durable product can be thereby obtained.

12. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Carter et al. (US 4,057,566)**, **Carter et al. (US 4,100,136)** or **Takago et al. (EP 527,008 A1)**, each individually in view of **Langstein et al. (US 5,554,689)**.

The discussion of the disclosures of the prior art of Langstein for Claims 1-5 and 7-17 of this office action is incorporated here by reference. The discussion of the disclosures of the prior art of Carter (566), Carter (136) and Takago for Claims 1 and 3-17 of this office action is also incorporated here by reference. Regarding dependent **Claim 2**, **each of Carter (566), Carter (136) and Takago** is silent about using VDF-based copolymers as fluorocarbon

Art Unit: 1796

polymers having methylene groups mentioned as (A) component in Claim 1. **Langstein has taught such a fluoropolymer type.** For instance, see column 2, line 37-45; column 4, line 58 – column 6, line 21; particularly see the use of VDF at column 5 at lines 23 and 62. By doing so, such a composition obtains more diversified hydrosilylation product and with improving heat, oil, ozone and irradiation resistance and better mechanical properties (column 1, line 8-11).

13. It is noted that all the involved references are dealing with hydrosilylation products made from fundamentally the same two functional groups, one having ordinary skill in the art would therefore have found it obvious to modify Carter (566), Carter (136) or Takago's process of making his composition by **using the same or similar VDF-based fluoropolymers** as taught by Langstein. By doing so, one would expect that all species in the same genus (fluoropolymer having the same functional group) would succeed based on functional equivalence and interchangeability. Additionally, more diversified and durable product can be thereby obtained.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a fluoropolymer composition comprising two components including: (A) a methylene group-containing fluoropolymer as both terminus as specified and (B) a hydrosilylation catalyst:


US 4,314,043 to Kojima et al. only discloses the preparation of crosslinked fluorine-containing grafted elastomer by the use of amine crosslinking agent or the like (column 8, line

Art Unit: 1796

11-45). Hydrosilylation type reaction is NOT used at all. Therefore, Kojima fails to teach or fairly suggest the composition of present application.

15. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/  
Peter D. Mulcahy  
Primary Examiner  
Art Unit 1796



Henry S. Hu

Patent Examiner, Art Unit 1796, USPTO

December 23, 2007